

**AMENDMENTS TO THE CLAIMS**

1. (original) A system for locating a marker associated with a patient comprising:

an excitation source for emitting a series of exciting pulses, each exciting pulse emitted during an excitation interval, said exciting pulse causing said marker to resonate;

a sensing array including a plurality of sensing coils, said sensing coils adapted for sensing a resonance signal of said marker and outputting a plurality of inputs during a observation interval that occurs following said excitation interval; and

a receiver for analyzing said plurality of inputs to remove noise from said plurality of inputs, said receiver acting on said plurality of inputs provided during said observation interval,

wherein said exciting pulses are emitted in a non-periodic manner.

2. (original) The system of Claim 1 further including a dithering circuit to introduce a pseudo-random dither into the timing of the start of said exciting pulses.

3. (original) The system of Claim 2 wherein said dither is approximately one-cycle of the resonant frequency of said marker.

4. (original) A system for locating a marker associated with a patient comprising:

means for emitting a series of exciting pulses, each exciting pulse emitted during an excitation interval, said exciting pulse causing said marker to resonate;

means for sensing including a plurality of sensing coils, said sensing coils adapted for sensing a resonance signal of said marker and outputting a plurality of inputs during a observation interval that occurs following said excitation interval; and

means for receiving and analyzing said plurality of inputs to remove noise from said plurality of inputs, said means for receiving and analyzing acting on said plurality of inputs provided during said observation interval,

wherein said exciting pulses are emitted in a non-periodic manner.

5. (original) The system of Claim 4 further including means for dithering operative to introduce a pseudo-random dither into the timing of the start of said exciting pulses.

6. (original) The system of Claim 5 wherein said dither is approximately one-cycle of the resonant frequency of said marker.

7. (original) A method for locating a marker associated with a patient comprising:

providing an excitation source for emitting a series of exciting pulses, each exciting pulse emitted during an excitation interval, said exciting pulse causing said marker to resonate;

providing a sensing array including a plurality of sensing coils, said sensing coils adapted for sensing a resonance signal of said marker and outputting a plurality of inputs during a observation interval that occurs following said excitation interval; and

providing a receiver for analyzing said plurality of inputs to remove noise from said plurality of inputs, said receiver acting on said plurality of inputs provided during said observation interval,

wherein said exciting pulses are emitted in a non-periodic manner.

8. (original) The method of Claim 7 further including introducing a pseudo-random dither into the timing of the start of said exciting pulses.

9. (original) The system of Claim 8 wherein said dither is approximately one-cycle of the resonant frequency of said marker.

10. (original) A system for locating a marker associated with a patient comprising:

an excitation source for emitting a series of exciting pulses, each exciting pulse emitted during an excitation interval, said exciting pulse causing said marker to resonate;

a sensing array including a plurality of sensing coils, said sensing coils adapted for sensing a resonance signal of said marker and outputting a plurality of inputs during a observation interval that occurs following said excitation interval; and

a receiver for analyzing said plurality of inputs to remove noise from said plurality of inputs, said receiver acting on said plurality of inputs provided during said observation interval,

wherein said exciting pulses have a random starting polarity.

11. (original) A method for locating a marker associated with a patient comprising:

providing an excitation source for emitting a series of exciting pulses, each exciting pulse emitted during an excitation interval, said exciting pulse causing said marker to resonate;

providing a sensing array including a plurality of sensing coils, said sensing coils adapted for sensing a resonance signal of said marker and outputting a plurality of inputs during a observation interval that occurs following said excitation interval; and

providing a receiver for analyzing said plurality of inputs to remove noise from said plurality of inputs, said receiver acting on said plurality of inputs provided during said observation interval,

wherein said exciting pulses have a random starting polarity.

12. (original) A system for locating a marker associated with a patient comprising:

an excitation source for emitting a series of exciting pulses, each exciting pulse emitted during an excitation interval, said exciting pulse causing said marker to resonate;

a sensing array including a plurality of sensing coils, said sensing coils adapted for sensing a resonance signal of said marker and outputting a plurality of inputs during a observation interval that occurs following said excitation interval; and

a receiver for analyzing said plurality of inputs to remove noise from said plurality of inputs, said receiver acting on said plurality of inputs provided during said observation interval,

wherein said exciting pulses start with a phase that is varying.

13. (original) A method for locating a marker associated with a patient comprising:

providing an excitation source for emitting a series of exciting pulses, each exciting pulse emitted during an excitation interval, said exciting pulse causing said marker to resonate;

providing a sensing array including a plurality of sensing coils, said sensing coils adapted for sensing a resonance signal of said marker and outputting a plurality of inputs during a observation interval that occurs following said excitation interval; and

providing a receiver for analyzing said plurality of inputs to remove noise from said plurality of inputs, said receiver acting on said plurality of inputs provided during said observation interval,

wherein said exciting pulses start with a phase that is varying.